



Card Code	Part No. 37----	Cplg Network		Circuit Used As		Input Levels		In-phase Output		Out-phase Output		ma Output			musec BlockDelay	
		In ϕ	Out ϕ	+O	-A	Min	Max	Min	Max	Min	Max	In ϕ	Out ϕ	Turn On	Turn Off	
DFZN	1330	Yes	Yes	+O	-A	-5.6	See driver for max. output levels	+0.4	+0.6	+0.4	+0.6					
DFZL	1331	No	Yes	+OA	-AO	-6.4		-0.4	-1.1	-0.4	-1.4	Min	5.62	5.98	7	5
				+TO	-TA							Nom	6.25	7.22	15	10
												Max	6.87	8.46	26	16

Diffused Junction Four-Way OR, Type A

The four-way P-type logic block is an OR circuit to positive logic and an AND circuit to negative logic. As an OR circuit, any positive input produces a positive in-phase output. As an AND circuit, all inputs must be negative to obtain a negative in-phase output.

The OR circuit logic block shows that any +P input produces a +N in-phase output and a -N out-of-phase output. Output A is an extender exit for extender card use.

Circuit Description

This circuit uses 4 transistors (T5, T3, T6 and T2) in an OR configuration similar to diode circuitry; i.e., the base-to-emitter of each transistor is a PN diode with the N region commoned and returned to a negative supply (-12v). The emitter output of this OR circuit drives into a grounded base amplifier T4 which is referenced to -6v. All inputs are -P as shown and the emitter line attempts to fall to the -P level. When the emitter of T4 falls below -6v it becomes forward-biased and clamps to the base potential of -6v. Output G is at a -N level of -0.7v because of current flow (6.3ma) through T4 into its coupling network. Output B is at a +N level of 0.5v

because of divider current through its coupling network.

When any input rises above -6v (see input C) the emitter line follows it and T4 is reverse-biased and cuts off. In this state, output G rises to a +N level because of divider current through its coupling network and output B falls to a -N level of -0.9v because of current flow (7.2ma) through an input transistor into its coupling network. The peaking coils compensate for output capacitance, so that optimum square-wave response is realized. The 82 ohm base resistor is an oscillation suppressor which is necessary because of the inductive coupling networks used. The type B block is the preferred circuit for many applications because it provides a better input current source (4.53K to -36v) than the type A (909 ohms to -12v).

Application

For some applications, the circuit driven by this logic block requires a coupling network other than the 187 ohm and 2.15K resistors shown. In such cases cap code ZL is used (see chart). This circuit is also combined with an AND circuit to make up a trigger and with other OR circuit blocks to obtain DOT functions.